



PATENT
Case SU-7155-C

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

JONATHAN N. HOWARTH ET AL.

SERIAL NO.: 10/688,125

FILED: OCTOBER 17, 2003

**MICROBIOLOGICAL CONTROL IN
AQUEOUS SYSTEMS**

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Enclosed herewith for consideration by the Examiner is an Information Disclosure Form PTO-1449 (modified). A copy of each listed document should be in the file of the parent application serial numbers 109/974,626, filed 10/09/2001; 09/484,938, filed January 18, 2000 and application serial number 09/775,516, filed February 2, 2001, of which the present application is a Division. However, if additional copies are needed, they will be supplied on request.

Respectfully Submitted,

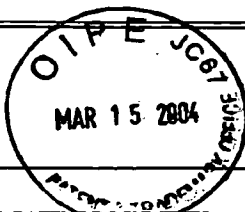
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Associate Attorney of Record

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CERTIFICATE OF MAILING

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REFERENCE DESIGNATION

U. S. PATENT DOCUMENTS

EXAMINER INITIAL	CITE NO.	DOCUMENT NUMBER							DATE	NAME			FILING DATE IF APPROPRIATE
	US-1	2	1	3	0	8	0	5	09-20-1938	Levine			
	US-2	2	3	9	2	5	0	5	01-8-1946	Rogers			
	US-3	2	3	9	8	5	9	8	04-16-1946	Rogers			
	US-4	2	7	7	9	7	6	4	01-29-1956	Paterson			
	US-5	2	7	9	5	5	5	6	06-11-1957	Quinn			
	US-6	2	8	6	8	7	8	7	01-13-1959	Paterson			
	US-7	2	9	2	0	9	9	7	01-12-1960	Wolf et al.			
	US-8	2	9	7	1	9	5	9	02-14-1961	Waugh et al.			
	US-9	2	9	7	1	9	6	0	02-14-1961	Waugh et al.			
	US-10	3	1	2	1	7	1	5	02-18-1964	Waugh et al.			
	US-11	3	1	4	7	2	5	9	09-01-1964	Paterson			
	US-12	3	3	4	5	3	7	1	10-03-1967	Paterson			

FOREIGN PATENT DOCUMENTS

	CITE NO.	DOCUMENT NUMBER							DATE	COUNTRY			TRANSLATION YES NO	
	FP-1	1	2	3	0	8	2	5	12-29-1987	Canada				
	FP-2	2	0	4	2	4	3	0	11-30-1991	Canada				
	FP-3	2	1	6	3	5	9	6	09-04-1996	Canada				
	FP-4	0	1	7	7	6	4	5	04-16-1986	EPO				
	FP-5	0	2	0	6	7	2	5	12-30-1986	EPO				
	FP-6	0	2	2	8	5	9	3	07-15-1987	EPO				
	FP-7	0	5	8	1	8	2	6	02-09-1994	EPO				

OTHER ENCLOSED DOCUMENTS

	CITE NO.	
	L-1	Corral et al., "Substitution in the Hydantoin Ring. III. Halogenation", J. Org. Chem., 1963, Vol. 28, ppg. 1100-1104.
	L-2	Jolles, "General Methods of Bromination", Bromine and its Compounds, 1966, Ernest Benn, London, ppg. 365.
	L-3	Markish et al., "New Aspects on the Preparation of 1,3-Dibromo-5,5-Dimethylhydantoin", Ind. Eng. Chem. Res. 1995, Vol. 34, ppg. 2125-2127.
	L-4	Orazi et al., "Halogenacion con 3-Bromo-5,5-Dimetil-Hidantoina", Anales Assoc. Quim. Argentina, 1949, Vol. 37, ppg. 192-196. (Not translated)
	L-5	Orazi et al., "Halogenacion Con 1-3-Dibromo-5,5-Dimetil-Hidantoina", Anales Assoc. Quim. Argentina, 1950, Vol. 38, ppg. 5-11. (Not translated)
	L-6	Gottarai: Reaction of Cl Br - In Aqueous solution (76 Zeutralks. Bakteriell., Parasiteukd.) In Fektionskr. Hyg., Abt. 1; Orig., Geihe B 162 (3-4), 384-8.

EXAMINER

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /N.L./

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	US-13	3	6	2	6	9	7	2	12-14-1971	Lorenzen			
	US-14	4	0	7	8	0	9	9	03-07-1978	Mazzola			
	US-15	4	1	1	9	5	3	5	10-10-1978	White et al.			
	US-16	4	1	2	6	7	1	7	11-21-1978	Mazzola			
	US-17	4	1	3	6	0	5	2	01-23-1979	Mazzola			
	US-18	4	1	9	9	0	0	1	04-22-1980	Kratz			
	US-19	4	2	4	2	2	1	6	12-30-1980	Daugherty et al.			
	US-20	4	2	7	0	5	6	5	06-02-1981	King, Sr.			
	US-21	4	2	9	3	4	2	5	10-06-1981	Price			
	US-22	4	3	2	7	1	5	1	04-27-1982	Mazzola			
	US-23	4	3	3	1	1	7	4	05-25-1982	King, Sr.			
	US-24	4	4	2	7	6	9	2	01-24-1984	Girard			
	US-25	4	4	5	1	3	7	6	05-29-1984	Sharp			
	US-26	4	4	6	5	8	3	9	08-14-1984	Schulte et al.			
	US-27	4	5	3	2	3	3	0	07-30-1985	Cole			
	US-28	4	5	3	7	6	9	7	08-27-1985	Girard			
	US-29	4	5	6	0	7	6	6	12-24-1985	Girard et al.			
	US-30	4	5	7	1	3	3	3	02-18-1986	Hsiao et al.			
	US-31	4	5	9	7	9	4	1	07-01-1986	Bottom et al.			
	US-32	4	6	2	1	0	9	6	11-04-1986	Cole			
	US-33	4	6	5	4	4	2	4	03-31-1987	Girard et al.			
	US-34	4	6	5	9	3	5	9	04-21-1987	Lorenz et al.			

FOREIGN PATENT DOCUMENTS

	CITE NO.	DOCUMENT NUMBER							DATE	COUNTRY			TRANSLATION YES NO	
	FP-8	1	0	5	4	2	4	3	01-1967	Great Britain				
	FP-9	1	6	0	0	2	8	9	10-14-1981	United Kingdom				
	FP-10	2	2	7	3	1	0	6	06-08-1994	Great Britain				
	FP-11	56	1	5	8	3	3	3	12-07-1981	Japan			X	
	FP-12	7	2	9	9	4	6	8	11-14-1995	Japan			X	

OTHER ENCLOSED DOCUMENTS - NON PATENT LITERATURE

	CITE NO.	
	L-7	March, "Advanced Organic Chem.", 1992, 4 th Edition, ppg. 639-640
	L-8	HCAPLUS Abstract of JP 07171576 A2 issued 1995.
	L-9	HCAPLUS Abstract of JP 07277912 A2 issued 1995.
	L-10	HCAPLUS Abstract of JP 08027119 A2 issued 1996.

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	US-35	4	6	6	2	3	8	7	05-05-1987	King, Sr.			
	US-36	4	6	7	7	1	3	0	06-30-1987	Puzig			
	US-37	4	6	9	8	1	6	5	10-06-1987	Theyson			
	US-38	4	7	1	3	0	7	9	12-15-1987	Chun et al.			
	US-39	4	7	2	8	4	5	3	03-01-1988	Choy			
	US-40	4	7	4	5	1	8	9	05-17-1988	Lee et al.			
	US-41	4	7	8	0	1	9	7	10-25-1988	Schuman			
	US-42	4	8	0	3	0	7	9	02-07-1989	Hsiao et al.			
	US-43	4	8	6	7	8	9	5	09-19-1989	Choy			
	US-44	4	9	1	9	8	4	1	04-24-1990	Kamel et al.			
	US-45	4	9	2	5	8	6	6	05-15-1990	Smith			
	US-46	4	9	6	4	8	9	2	10-23-1990	Hsu			
	US-47	5	0	7	6	3	1	5	12-31-1991	King			
	US-48	5	1	3	7	5	6	3	08-11-1992	Valkanias			
	US-49	5	2	1	8	9	8	3	06-15-1993	King			
	US-50	5	3	3	8	4	6	1	08-16-1994	Jones			
	US-51	5	3	3	9	8	8	9	08-23-1994	Bigham			
	US-52	5	3	8	4	1	0	2	01-24-1995	Ferguson et al.			
	US-53	5	4	0	3	8	1	3	04-04-1995	Lichti et al.			
	US-54	5	4	2	2	1	2	6	06-06-1995	Howarth et al.			
	US-55	5	4	7	6	1	1	6	12-19-1995	Price et al.			
	US-56	5	5	6	5	1	0	9	10-15-1996	Sweeny			
	US-57	5	5	6	5	5	7	6	10-15-1996	Hall et al.			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER							DATE	COUNTRY			TRANSLATION YES NO	
	FP-13	8	9	1	0	6	9	6	11-16-1989	WIPO				
	FP-14	9	6	3	0	4	9	1	10-03-1996	WIPO				
	FP-15	9	7	1	5	6	5	2	05-01-1997	WIPO				
	FP-16	9	7	2	0	5	4	6	06-12-1997	WIPO				

OTHER ENCLOSED DOCUMENTS

	L-11	Chowhan et al., "Hardness Increase Induced by Partial Moisture Loss in Compressed Tablets and Its Effect on In Vitro Dissolution", J. Pharm. Sciences, October 1978, Vol. 67, No. 10, ppg. 1385-1389.											
	L-12	Krycer et al., "An Evaluation of Tablet Binding Agents Part II. Pressure Binders", Powder Technology, 1983, Vol. 34, ppg. 53-56.											
	L-13	Pettersen, "N-Halogen Compounds. I. Decomposition of 1,3-Dichloro-5,5-dimethylhydantoin in Water at pH 9", J. Org. Chem., 1959, Vol. 24, ppg. 1414-1419.											

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	US-58	5	5	7	8	5	5	9	11-26-1996	Dolan et al.			
	US-59	5	5	9	1	6	9	2	01-07-1997	Jones et al.			
	US-60	5	6	0	3	9	4	1	02-18-1997	Farina et al.			
	US-61	5	6	1	0	1	2	6	03-11-1997	Barford et al.			
	US-62	5	6	1	4	5	2	8	03-25-1997	Jones et al.			
	US-63	5	6	7	0	4	5	1	09-23-1997	Jones et al.			
	US-64	5	7	5	0	0	6	1	05-12-1998	Farina et al.			
	US-65	5	7	5	3	6	0	2	05-19-1998	Hung et al.			
	US-66	5	7	5	6	4	4	0	05-26-1998	Watanabe et al.			
	US-67	5	7	6	3	3	7	6	0609-1998	Ward et al.			
	US-68	5	7	8	0	6	4	1	07-14-1998	Yerushalmi et al.			
	US-69	5	8	5	9	0	6	0	01-12-1999	Platt			
	US-70	5	9	4	2	1	5	3	08-24-1999	Heydel			
	US-71	5	9	5	8	8	5	3	09-28-1999	Watanabe			
	US-72	5	9	7	2	8	6	4	10-26-1999	Counts			
	US-73	5	9	8	1	4	6	1	11-09-1999	Counts et al.			
	US-74	5	9	8	4	9	9	4	11-16-1999	Hudson			

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		DOCUMENT NUMBER							DATE	COUNTRY			TRANSLATION YES NO
	FP-17	9	7	2	0	9	0	9	06-12-1997	WIPO			
	FP-18	9	7	4	3	2	6	4	11-20-1997	WIPO			
	FP-19	9	7	4	3	3	9	2	11-20-1997	WIPO			
	FP-20	0	0	3	4	1	8	6	06-15-2000	WIPO			

OTHER ENCLOSED DOCUMENTS

	L-14	HCAPLUS Abstract of JP 08239699 A2 issued 1996.											
	L-15	HCAPLUS Abstract of JP 09087684 A2 issued 1997.											
	L-16	HCAPLUS Abstract of JP 09227317 A2 issued 1997.											
	L-17	Hayward America's #1 Pool Water Systems Product Catalog, "Automatic Chemical Feeders" "Chlorinators (Slow Dissolve Tri-Chlor Only) and Brominators, Hayward Pool Products Inc. Website, < http://www.haywardnet.com/products/catalog/displayProdInfo.cfm?itemID=61 >, 2 pages.											
	L-18	Author unknown, "Big Brother Brominator - Brominators", Bulky Systems Website, < http://www.bulkysystemsinc.com/brominator.html > (Visited August 10, 2001). 1 page.											
	L-19	Hayward Pool Products Owner's Guide, Installation and Operating Instructions, "Hayward Chemical Feeder", Models C250CF, C500CF, C1100CF, C1800CF, C2400CF, - 1998 - 4 pages											
	L-20	Hayward America's #1 Pool Water Systems Product Catalog, "Automatic Chemical Feeders" "Chlorinators (Slow Dissolve Tri-Chlor Only) and Brominators, Buyers Guide, Hayward Pool Products Inc., Website, < http://www.haywardnet.com/products/catalog/displayProdInfo.cfm?itemID=60 >, 2 pg											
	L-21	Pentair Pool Products Brochure, "Rainbow High Capacity Chlorine/Bromine Feeders", "Unsurpassed Performance From The Industry's Leader in Automatic Sanitizing of Large Residential and Commercial Pools", date unknown, 1 page.											

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												TRANSLATION YES NO
	FP-21	0	1	5	3	2	0	9	07-26-2001	Albemarle Corporation		

OTHER ENCLOSED DOCUMENTS

	L-22	Pentair Pool Products Brochure, "Rainbow Model 300 Automatic Chlorine/Bromine Off-line Feeders", "The Efficient, Easy Way to Sanitize Your Pool or Spa", date unknown, 1 page.
	L-23	Pentair Pool Products Brochure, "Rainbow Model 320 Automatic Chlorine/Bromine In-line Feeder", "Saves Time, Reduces Manual Handling of Chemicals", date unknown, 7 pages.
	L-24	Sani-King Perform-Max Pool Sanitizer Instruction Guide, Models 910, 940, & 980 (Inline) and Models 930 & 960 (Off-line), date unknown, 16 pages.
	L-25	Sani-King Spa Feeder Product Brochure Model 740 from King Technology Website, < http://www.kingtechnology.com/spafeeder.htm > Visited (August 10, 2001), 2000, 4 pages.
	L-26	Sani-King Adjust-A-Flo Product Brochure from King Technology Website < http://www.kingtechnology.com/spafeeder.htm > (Visited August 10, 2001), 2000, 1 page.
	L-27	Sani-King Perform-Max Sanitizers for Inground Pools Product Brochure for Model 940 & 960 from King Technology Website, < http://www.kingtechnology.com/perfermaxIG.htm > , visited August 10, 2001, 2000, 1 page
	L-28	Sani-King Perform-Max Sanitizers for Above Ground Pools Product Brochure Model 910 & 930 from King Technology Website, < http://www.kingtechnology.com/perfermaxIG.htm > , visited August 10, 2001, 2000, 1 page
	L-29	Discount Pool & Spa Supplies, Automatic Chlorinators and Chemical Feeders Website, < http://www.discountpoolsupplies.com/Chemfeeders/ > Visited August 10, 2001, 3 pages.
	L-30	Sorum -- Fundamentals of General Chemistry, p. 315, 1955
	L-31	Al Zahrani, S.M., "Utilization of Polyethylene and Paraffin Waxes as Controlled Delivery Systems for Different Fertilizers", Ind. Eng. Chem. Res., 2000, vol 39, pp 369-371

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